The case study

A customer is buying cut-to-size (CTS) sawed plate from thyssenkrupp Aerospace, which ships directly to the customer from a thyssenkrupp facility. The customer receives in the material, inspects it, and performs hardness and conductivity tests before shipping it back out to a sub-contractor. The sub-contractor machines the plate to a NNS, then skim mills it, adds tooling holes and a dove-tail. The scrap and rough machined product is delivered back to the customer, where it is again received in and inspected.

The solution; thyssenkrupp Aerospace can aggregate and nest the customer's requirements to maximize material utilization. Hardness and conductivity testing are conducted at thyssenkrupp Aerospace. Material is sawed and waterjet cut, then machined to the customer requirements. Cut and machined products are marked with a bar code then kitted and sequenced. Through source delegation thyssenkrupp Aerospace is able to deliver JIT and Point-of-Use directly to the customer's machines. Scrap is handled by thyssenkrupp Aerospace per agreement with the customer.

Key benefits

- Aggregating and nesting customer demand at thyssenkrupp Aerospace achieves better material yield, and reduces scrap handling costs.
- Eliminating in-house inspection/testing processes, and sub-contracted machine work removes bottlenecks at the customer.
- Using thyssenkrupp Aerospace as the "one stop" shop for all material prep work reduces material handling and risk at the customer.
- Customer machine capacity is increased by offloading the roughing work to thyssenkrupp Aerospace.
- A material prep process that previously took the customer days to complete is made JIT.

Materials Services
Aerospace

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tka 09/2017

Materials Services
Aerospace

CNC machining

thyssenkrupp

The challenge

More and more, we hear from our customers that they are seeking to procure materials in a manner that maximizes Overall Equipment Effectiveness and minimizes cost. The goal is to eliminate wasteful steps in the manufacturing process by procuring materials that do not require prep work.

thyssenkrupp Aerospace was among the first in the aerospace industry to popularize the use of Computer Numerical Control (CNC) abrasive waterjet technology to provide Near Net Shapes (NNS). This solved many of the bottlenecks in the manufacturing process, but left others remaining. The problem is that customers may need more than a two-dimensional NNS; such as holding features, precision holes, a milled surface, pockets/hogouts and even machined line marking.

Either the customer allocates resources to material preparation, or offloads those functions to a third party. This adds time and costs, and may diminish equipment capacity that can be more effectively used for other tasks.

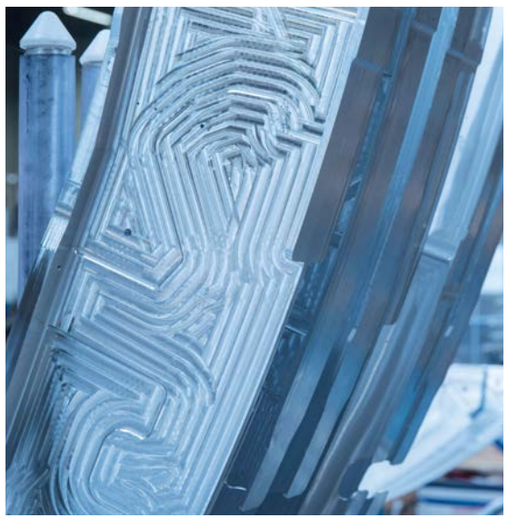
The process...

- **The customer's requirements are captured in a Computer-Aided Design (CAD) model which may include a 2-D or 3-D profile, dove-tail, milling, holes, pockets, or other CNC machining and abrasive waterjet cutting requirements.**
- The customer's requirements are nested to optimize material utilization.
- Material is issued from inventory for processing.
- All features are inspected to ensure they meet the customer's requirements.
- Completed items are packaged, prepared for shipment, and delivered to the customer.

...to a customized solution

Combining CNC machining services with other Value Added Services (VAS) thyssenkrupp Aerospace is a true "one stop" solution for your material preparation needs.

- Three axis machines for both soft and hard metal applications
- **Beds that can accommodate full size plate, with a z-axis for maximum plate thicknesses**
- **High speed machines running spindles at up 12,000 RPM**
- Machines are set up and tooled to run roughing operations including; holding features such as dove-tails and techni-grips, precision holes, milled surfaces, pockets/hog-outs and machined line marking



Dovetail
Holes, Drill & Tap
Profiling
Pocketing/
Hog-Outs
Surface Milling